Courtagen

Five Innovative Organizations Announce Collaboration to Study Biological Causes and Contributors to Autism

*CNNH, along with partners Bancroft, **Courtagen Life Sciences**, Coriell Institute for Medical Research & the Mitochondrial Disease Laboratory of St. Christopher's Hospital for Children, announces the award of a new grant to study genetic abnormalities and their clinical manifestations in Autism*

GIBBSBORO, NJ. July 16, 2014 – The New Jersey Health Commissioner Mary E. O'Dowd has announced the distribution of $2.5 million in grant funds to advance research, treatment and prevention of autism. The **Governor's Council for Medical Research and Treatment of Autism** awarded seven grants to NJ medical research and clinical institutions. NeurAbilities (Gibbsboro, NJ) is one of the awardees, receiving a two-year grant to investigate for genetic abnormalities in those with Autism Spectrum Disorders (ASD) associated with intellectual disabilities and/or epilepsy, and determine their clinical manifestations. Findings from this research project will discover new biological causes of ASDs and associated complications, as well as assist clinicians in determining treatments targeting mechanisms of disease rather than symptoms. The Center for Neurological and Neurodevelopmental Health (CNNH) will lead this project, with four collaborating institutions: Bancroft (Haddonfield, NJ), Courtagen Life Sciences (Woburn, Massachusetts), Coriell Institute for Medical Research (Camden, NJ), and the Mitochondrial Disease Laboratory of St. Christopher's Hospital for Children (Philadelphia, PA). These five specialized and innovative organizations will work collaboratively to investigate how certain genetic variations are associated with impairments in brain energy production and function, and can subsequently cause ASDs and/or lead to complications of ASDs, such as epilepsy, gastrointestinal problems, and serious behavioral disturbances.

"We are very excited to partner with these elite organizations to incorporate the latest advances in genetic analysis with a multidisciplinary and comprehensive clinical evaluation approach to discover new biological forms of autism, and uncover potentially treatable conditions in patients with autism spectrum disorders." said Mark Mintz, M.D., President, Founder and CEO of CNNH.

Discoveries made from the study will contribute to better understanding of how genetic abnormalities found in individuals with autism can also contribute to other associated problems: dysfunctions that can contribute to the daily struggles these individual may face. Such abnormalities may include epilepsy, gastrointestinal problems, behavioral issues, intellectual and cognitive impairment, psychiatric disorders, sleep difficulties and more. It is estimated that up to 80% of individuals with autism spectrum disorders have additional – often overlooked - concerns.

Over the course of the study, data will be collected from changes in laboratory tests, abnormalities on brain testing, manifestations of behavioral abnormalities or from advanced techniques in genetic testing.

"We are excited about the voice this study will bring to people with autism. This project will help us understand the true causes of some of the most debilitating symptoms. We are thrilled to be part of this cutting edge research that is expected to improve quality of life for individuals with autism." comments Toni Pergolin, Bancroft president and CEO.

Bancroft, a leading provider of programs and supports for children and adults with autism, acquired brain injuries, and varied intellectual and developmental disabilities, will work with CNNH to identify candidates for the study and conduct regular clinical and behavioral evaluations and data collection. Courtagen Life Sciences will perform comprehensive DNA sequencing and analysis of genes associated with autism spectrum disorders, cellular ion transport, epilepsy, and mitochondrial function. Using the latest in Next Generation (NextGen) DNA sequencing technologies, including RADseq (Restriction-site associated DNA sequencing), and a small saliva sample, the targeted exome panel will be able to find genetic variations that may be pathologic

(disease-causing) and actionable (result in a change in clinical management). The Mitochondrial Disease Laboratory of St. Christopher's Hospital for Children will be performing enzymological assays of mitochondrial activity on saliva samples. Additionally, Coriell Institute for Medical Research will biobank DNA samples of participating subjects for future investigations, or for the benefit of national and international researchers in the field of ASDs.

Results from this research project will discover new biological forms of ASDs, and give explanations for why certain symptoms present themselves. Having this level of understanding will allow doctors and other practitioners to provide targeted and evidence-based treatments and therapies: thus, innovative "personalized" approaches to ASDs. "We have the opportunity to harness the power of genomics and associate it with well-defined clinical profiles that will lead to informed approaches to treating autism and its complications, leading to better clinical management and improved quality of life for patients," said Richard Boles, M.D., Medical Director of Courtagen Life Sciences.

About NeurAbilties

NeurAbilities is an independent nonprofit organization that provides those affected by neurological disorders, neurodevelopmental disabilities and brain injury access to the most effective and comprehensive diagnostic, treatment and innovative services available. This is accomplished through enhancing clinical services, supporting research, providing technical assistance and educational resources, and developing pathways for accessing innovative therapies. Visit www.NeurAbilities.org to learn more.

About CNNH

CNNH was created in 2005 by Dr. Mark Mintz, a pediatric neurologist, in response to what he saw as a fragmented neurohealth care industry. CNNH is an innovative and integrative neurohealth organization, providing diagnostic and treatment services for children, adolescents and adults with neurological, neuropsychological, neuropsychiatric, behavioral, developmental and learning concerns. CNNH's unique "Specialty Care Medical Home™" model of care allows their clinicians to follow individuals throughout the treatment process and across the lifespan. To learn more about CNNH and to request an appointment, please visit online at www.CNNH.org or call Toll Free at 855-852-8150.

About Bancroft

Bancroft is a non-profit organization providing a continuum of services for individuals with autism, brain injuries, and other developmental disabilities. Founded in 1883 as one of the first schools in the country for children with autism and other intellectual disabilities, Bancroft continues to pioneer innovative programs and services to ensure that every person is given opportunities for lifelong learning and fulfillment. Bancroft serves more than 1,500 individuals annually in New Jersey, Pennsylvania and Delaware.

About Courtagen Life Sciences, Inc.

Courtagen is a privately held life sciences and molecular information company that converts genomic data into actionable clinical information for the diagnosis of critical pediatric neurological and metabolic disorders. Specifically, Courtagen focuses on mitochondrial disorders, epilepsy, and intellectual disability, including autism spectrum disorders. Courtagen's state-of-the-art Next-Generation Sequencing clinical laboratory integrates genotype, phenotype, and disease mechanism data using cloud-based computing and custom analytical methods to provide the most comprehensive results for clinicians, patients, and their families to better understand and treat their disease. More information can be found at www.courtagen.com.

About Coriell Institute for Medical Research

Coriell Institute for Medical Research is an independent, non-profit biomedical research center based in Camden, New Jersey. Founded in 1953, the Institute is dedicated to unlocking the genetic code of human disease. Coriell is a pioneer in genomics, examining the utility of genetic

information in clinical care through the Coriell Personalized Medicine Collaborative (CPMC) research study (www.cpmc.coriell.org). The Institute is also exploring the promise of induced pluripotent stem cells – stem cells created from skin or blood – and their role in disease research and drug discovery. Additionally, Coriell continues to be recognized as the world's leading biobank, distributing biological samples and offering custom research and biobanking services to scientists around the globe. For more information, visit www.coriell.org or follow @Coriell_Science on Twitter.

About Mitochondrial Disease Laboratory of St. Christopher's Hospital for Children

Since 1875, St. Christopher's Hospital for Children has been providing exceptional patient care and advancing new pediatric treatments through research and innovation. Through affiliations with Drexel University College of Medicine and Temple University School of Medicine, St. Christopher's is a teaching hospital helping to train the next generation of professionals in pediatric medicine.

A 189-bed hospital, St. Christopher's is committed to delivering high quality family-and patient-centered care to children throughout the greater Delaware Valley. Its highly acclaimed programs include a Level I Pediatric Trauma Center, Level IV NICU, a Heart Center and Oncology unit. Hospital services also include the only dedicated pediatric burn center in the area. Thanks to our nursing excellence, St. Christopher's achieved Magnet status in 2009. Numerous St. Christopher's physicians are frequently recognized in regional publications as "Top Docs" in their fields of expertise. In 2012, St. Christopher's announced a $110 million expansion to include two new structures. The Critical Care Tower, which features advanced technology while incorporating families' needs, will house 50 critical care and 60 Level IIIC NICU beds. The Center for the Urban Child will provide children with comprehensive services to help break the cycles of food insecurity, violence and childhood illness.

To learn more about St. Christopher's, visit www.stchristophershospital.com or call 215-427-5000. Find us on social media at facebook.com/stchrishospital, stchrishospital.blogspot.com, youtube.com/stchrisvideos, pinterest.com/stchrishospital, and on instagram at @stchrismarketing and twitter at @stchristhospital.